

**COMMENTS AND WATER BOARD RESPONSE TO COMMENTS  
2007 MONITORING REPORT REVIEW**

The Water Board staff appreciates the many detailed comments provided by various stakeholders who have previewed the Draft 2007 Monitoring Report Review (Review). The response to comments provided below address only those comments which *did not* result in changes to the Review, or for those that did not seem to request a change.

## **A. RESPONSE TO COMMENTS RECEIVED FROM WILLIAM J. THOMAS AND THE SOUTHERN SAN JOAQUIN VALLEY WATER QUALITY COALITION**

1. COMMENT #1: "It is difficult for us to review and comment on data which had been accumulated from UC, Regional Board and SWAMP monitoring. The Coalition data was collected as a result of agreed upon MRP protocols, from monitoring stations agreed to by each the coalitions and Regional Board, and which was collected on uniform schedules. None of these scientific disciplines are true of the other data collections which did not have such agreed to and vetted protocols or monitoring station selections. Some of that data was from locations influenced by other sources, was taken at different frequencies and otherwise is not of the quality as Coalition derived data."

RESPONSE: All monitoring for the Irrigated Lands Program is required to follow the Quality Assurance Program Plan, which originated from Surface Water Ambient Monitoring Program (SWAMP) guidelines. This includes the monitoring conducted by Regional Water Board (staff), the contract work through University of California and the SWAMP program itself. Coalitions have also been required to comply with SWAMP-comparable QAPP. In those cases when it was clear that quality assurance protocols were not followed (e.g., field parameters, such as pH measured in the laboratory), staff did not include those data.

It should be noted that combining various water quality data that has been collected and analyzed consistent with a QAPP is a common practice and is an established State-wide policy ([http://www.waterboards.ca.gov/tmdl/docs/ffed\\_303d\\_listingpolicy093004.pdf](http://www.waterboards.ca.gov/tmdl/docs/ffed_303d_listingpolicy093004.pdf)) for 303(d) listing purposes. Finally, if the Coalition is having difficulty in reviewing the data, Water Board staff are available to meet with Coalition staff to address any areas of potential confusion.

2. COMMENT #2: "We concur that our Tulare Lake Basin hydrology is significantly different than the balance of the Region and our data is to be compared only to our Tulare Lake Basin, Basin Plan. We do not have the 303d, TMDL, Delta, fish, drinking water, etc. issues in our Region as are associated with the other sub-basins."

RESPONSE: Each of the zone discussions used in the Review have addressed the unique nature of the watersheds. The Zone 4 review in particular, which includes the SSJWQC, addresses the monitoring results through the lens of the Tulare Lake Basin Plan. Although the Zone 4 does not have the quantity of CWA 303(d) listings as other Zones, there are several listed water body segments in the Tulare Lake Basin, and as a result, the development of TMDLs will be scheduled. Furthermore, beneficial uses to support fish as well as drinking water are identified in the Tulare Lake Basin Plan, including Kings, Kaweah, Tule and Kern Rivers.

3. COMMENT #3: "The criticism as to the 'scarcity of monitoring data' from our sub-basin is a value judgment and not a report of monitoring data. The lower San Joaquin Valley is uniquely dry, flat, not characterized by water drainage systems, has limited run-off and what drainage there is goes into farming enterprises in the historic lake bed, and is consumed through evapotranspiration. The Regional Board approved the quantity, location and frequency of the monitoring stations and monitoring protocol. If there is a lack of water the San Joaquin Valley itself cannot be blamed any more than the Region Board which approved the MRPs and sites can be blamed.

RESPONSE: The Review was written to provide a data summary and an evaluation of the monitoring, including a baseline assessment. There was no intent to evaluate compliance or

coalition performance, so no criticism is intended. Relative to the other Zones, a limited amount of data is available for Zone 4 as discussed in the Review: “There can be a variety of reasons for this scarcity of monitoring data, including limitations caused by natural characteristics such as soil texture, low rainfall, and snow pack, as well as the different interpretations for monitoring programs utilized by Coalitions in Zone 4.” Staff recognizes the challenges posed by the unique watershed characteristics in Zone 4, and also believes that a collaborative approach to monitoring design will produce sufficient information for a more complete assessment.

4. COMMENT #4: “The report overly focuses on pesticides and the extent of agriculture’s reliance on them for pest damage prevention. There are many factors which may lead to water contamination – pesticides are but one. As indicated below, our pesticide monitoring does not bear out significant toxicity in our zone. The South San Joaquin Coalition data shows no pesticide or nutrient exceedance.”

RESPONSE: The Review includes a discussion of aquatic and sediment toxicity, salinity and data gaps as well as a summary of the limited amount of pesticide data for Zone 4. Additionally, the quantity of pesticide monitoring data from Zone 4 is minimal, as compared to the data available to Staff for other zones. The more limited quantity of pesticide monitoring data, both in frequency and in variety of pesticides tested, is unfortunate, considering the quantity of pesticides applied in Zone 4. Staff anticipates that current implementation of the second phase of Coalition monitoring which, when completed, will provide the full suite of metals, pesticides and nutrients, and will provide valuable information about other possible sources of water contamination.

5. COMMENT #5: Table Z4-3 makes a point of ‘mortality in multiple species’, however, in each instance algae toxicity is one such species. As the Regional Board staff recognizes through its joint coordination with the South San Joaquin Coalition specific testing was engaged in source water which confirmed that algae toxicity is not as a result of agriculture run-of. Consequently, a combining of these data may have no basis.”

RESPONSE: Staff is aware that the SSJWQC has collected algae toxicity tests at two monitoring sites on the Kings River that are believed to be above any irrigated agriculture land use, and that these two sites indicated the presence of algae toxicity. However, there has not been any formal submittal of the data with appropriate assessment and/or statistical comparison to other monitoring sites along the Kings River. Since the Regional Board does not have data demonstrating that non-agricultural sources are causing the algal toxicity, the observation of “mortality in multiple species” is accurate. Furthermore, there has not been any similar type of source monitoring that the staff is aware of for the Kaweah, Tule and Kern Rivers, or any other water bodies in the Tulare Lake Basin area.

6. COMMENT #6: “The Flathead Minnow Chart (Z4-4) does not identify the monitoring site for some of the coalition reports nor does it identify the year. It shows only two identified Coalition sites (Kings Lemoore and Tule North Fork) where two samples had a 20-50% minnow mortality, thus not triggering any TIE follow-up, therefore no cause conclusions can be made. The observation is made because there is more minnow than Ceriodaphnia toxicity it could be a result of ammonia. This appears to be speculation particularly in light of the absence of high levels of nitrogen in the nutrient data.

RESPONSE: The comment seems to state that some Coalition monitoring sites are not listed in Table Z4-4. This is intentional, as only sites that indicated some level of fathead minnow toxicity

are listed on the Table. Sites where no fathead minnow toxicity occurred are not listed. It should be noted, however, that the Table also lists four test results (three of which were Coalition monitoring sites) that exceeded the 50% criteria for conducting a TIE. Figure Z4-4 does show all of the Coalition and Supplemental monitoring sites for fathead minnow, including those for which no toxicity was found.

Primarily because nutrient monitoring (which includes nitrates and ammonia) for coalitions began recently with irrigation season 2006, minimal nutrient data were available to the Staff for the Review. It is anticipated that future monitoring summaries will include more information on nutrients which could help explain issues of minnow toxicity, low dissolved oxygen, or other concerns. The SSJWQC also should be advised that nitrogen is toxic to fathead minnow only at very high levels, but low levels of ammonia are very toxic to the same species. Results for nitrogen should not be confused with those for ammonia.

7. COMMENT #7: Only two South San Joaquin Coalition sites demonstrated *Ceriodaphnia dubia* toxicity (Kings Manning and Stone Corral) and there was no TIE analysis. We found the reference to TIEs from other programs to be of interest and we will refer to that in future data analysis, however, our pesticide monitoring did not find these chemistries.

RESPONSE: It should be noted that two of the test results for *Ceriodaphnia dubia* that were conducted at coalition monitoring sites exceeded the 50% mortality which would trigger a TIE, and staff agrees that none was conducted, although it was required. One of these was at the Stone Corral site (zero percent survival) referenced in the comment letter, the other was at a Westlands Coalition monitoring site. It should also be noted that only minimal pesticide monitoring data have been generated for Zone 4, in large part due to the fact that Phase II of the Coalition MRP (which includes pesticides, nutrients and metals) began only recently with irrigation season 2006. The fact that the MRP Order has divided the monitoring program into two phases, with Phase I being for toxicity testing and Phase II to include pesticides and metals is a complication to the identification of the causes of toxicity. In the absence of concurrent chemical and toxicity analyses, identification of toxicant(s) becomes more difficult.

8. COMMENT #8: "In the other zone reports there were separate sections regarding pesticides. This was not the case regarding our zone. There were no pesticide exceedances found in our zone and this should have been equally presented.

We join many of the comments made by the other zones, including the point that the report seems to focus on critical data rather than being truly objective. Data of a non-exceedance is equally scientific and important as that of an exceedance. The report should also guard against reference to 'detections' and stay focused only on the 'exceedance' threshold. Another term of a 'detection' is a 'lawful discharge'."

RESPONSE: This comment seems to be inconsistent with Comment #4, which refers to an overemphasis on pesticides. The Review for Zone 4 does include a separate section on Pesticides, immediately following the discussions on water column and sediment toxicity. The section also includes Table Z4-8, Pesticide Tests and Results Greater than Trigger Limits, as well as Figure Z4-8, Monitoring Results for Pesticides. Staff agrees that it is also important to identify areas where there were no pesticide exceedances, and Figure Z4-8, in particular, identifies the monitoring locations that did not have exceedances.

Staff does not agree that pesticide detections should not be referenced, due to the fact that multiple pesticides at levels below trigger limits could have an additive and/or synergistic effect on aquatic species and could help explain toxicity test results.

9. COMMENT #9: "The last sentence demanding 'more frequent and comprehensive monitoring,' is not a data report but a subjective opinion as to what may occur in future discussions between the Board staff and the Coalitions and amendments to the existing waiver, Regional MRP, and Coalition MRP."

RESPONSE: It appears that the Comment references a sentence that is located in the separate discussion of Zone 4 entitled 'PESTICIDES'. Staff agrees that there are alternatives to developing an understanding of the presence of pesticides and their impact to water quality, which would not necessarily be limited to more monitoring. The sentence will be modified accordingly.

10. COMMENT #10: "The summary section is not a data analysis, is disjointed, has no flow, and appears to be a collection of various staff speculations. The summary should merely be a data summary, if necessary whatsoever."

RESPONSE: Staff appreciates the comment.

## **B. RESPONSE TO COMMENTS RECEIVED FROM TINA LUNT, SACRAMENTO VALLEY WATER QUALITY COALITION (SVWQC)**

1. SVWQC COMMENT: "ES Number 3: *'The Central Valley Water Board has tentatively identified a process by which it could set forth the beneficial uses by water body according to existing Basin Plan requirements, and thereby identify the limits to be used in implementing the water quality standards.'* Although it is not clear exactly what this process is, we applaud the effort to establish a process. However, it is not sufficient only to identify beneficial uses. The Board also needs to identify valid and appropriate numeric objectives to evaluate water quality supportive of those beneficial uses. The current process of using the lowest of a variety of unvalidated 'triggers' does not meet consistent, rigorous scientific standard for setting water quality objectives, and it does not appear to comply with Porter-Cologne requirements."

RESPONSE: Staff does not agree that there is a "current process" that uses "the lowest of a variety of unvalidated 'triggers'" which do not meet "consistent, rigorous, scientific standards for setting water quality objectives", and that "does not comply with Porter-Cologne requirements." Staff has initiated a process which it has discussed with the ILP Technical Issues Committee. The process will utilize existing Basin Plan requirements and set forth the beneficial uses by water body and identify the limits in the MRPs to be used in applying the water quality standards in the different water bodies. It also sets forth the option for stakeholders to provide additional information to the Central Valley Water Board relevant to beneficial uses, numeric values to apply narrative objectives, and applicable analytical methods and validity of technical studies. This is entirely consistent with the Board adopted *Policy for Application of Water Quality Objectives*, found in Chapter IV of the Basin Plan, which states in part:

"To evaluate compliance with the narrative water quality objectives, the Regional Water Board considers, on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations... In considering such criteria, the Board evaluates

whether the specific numerical criteria, which are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective.”

2. SVWQC COMMENT: “ES Number 6: ‘*data that is not captured includes occasions when drainage occurs from water that is applied for other purposes, such as pre-planting application, post-harvest application, and application of water for frost protection.*’ This describes specific conditions that are not currently targeted for sampling by the ILP MRP. The statement is accurate but fails to note that these conditions are not common, account for only a very small percentage of runoff and drainage, and are unlikely to have region-wide water quality impacts.”

RESPONSE: The intent of the Review is to identify data gaps which make it difficult to develop an accurate characterization of the impact of irrigated agriculture on water quality. If certain agricultural practices (eg: irrigation for frost protection) are not being addressed by the ILP MRP, then that is worth noting. The comment that the “conditions are not common, account for only a very small percentage of runoff and drainage, and are unlikely to have region-wide water quality impacts.” Is speculative and remains to be verified throughout the Central Valley. Region-wide impacts are not necessary for a discharge to be in violation of water quality standards.

3. SVWQC COMMENT: “Page Z1-17. ‘*Shasta/Tehama Subwatershed: Site No. 11 (Burch Creek at Woodson Avenue Bridge) had multiple toxic results for Ceriodaphnia and one measured value of diazinon over the Basin Plan Objective.*’ It should be explained that upon further investigation, results were likely due to non-agricultural sources (e.g., I-5, and truck stop and/or a nearby landfill).

RESPONSE: Staff understands that SVWQC has moved the Burch Creek at Woodson Avenue Bridge monitoring site so that it is now upstream of the I-5 bridge, instead of downstream. However, there has not been sufficient time for the monitoring at the new site, nor has a technical evaluation been provided, that could help eliminate irrigated agriculture as a source of exceedances identified at the previous site. Staff welcomes more information that will help evaluate the cause of the previous exceedances.

4. SVWQC COMMENT: “Page Z1-21. It should be noted that toxicity was greater than 20% in only 7 out of the 17 statistically toxic samples (7.6% of all samples), and at only 5 sites (10% of sites). The relative frequency of Ceriodaphnia toxicity was much lower (approximately half) than of the frequency of chlorpyrifos and diazinon exceedances. This suggests that the chlorpyrifos and diazinon exceedances appear to overestimate invertebrate toxicity risk by apx. 50%.”

RESPONSE: It appears that the comment is addressing the paragraph in Zone 1 summary regarding sediment toxicity frequency for the first sentence in this comment, and is then addressing the paragraph on pesticide results that immediately follows that sediment toxicity discussion. It is important to recognize that the 20% mortality for toxicity is a trigger level that is utilized by the Coalitions to determine if re-sampling is required or not. It is possible for a toxicity test result that is less than or equal to 20% mortality to be statistically significant, thereby meeting the definition of toxicity and to be considered an exceedance.

The comparison of *Ceriodaphnia dubia* test results to the presence of chlorpyrifos and diazinon may be a mechanism to understand water flea toxicity. However, a direct comparison of the

number of acute toxicity test results to the number of pesticide results that exceed a chronic limit is not a direct and meaningful comparison. If the toxicity tests included longer testing for chronic effects, the relationship might have more significance. In addition, depending on the degree a water sample exceeds a water quality objective, one may or may not expect to observe concomitant toxicity to aquatic test species. This is because water quality objectives are set below toxic thresholds to protect all aquatic species not to predict toxic effects on a particular test species.

5. SVWQC COMMENT: "Page 3, Prioritization of Implementation, Second Paragraph. The first sentence states the obvious, and it would not be cost effective for any grower to implement management measures that had small or no potential to improve water quality. This paragraph also makes on think that there are no management practices in place."

RESPONSE: The statement is intended to reflect the need to prioritize based on the greatest potential to improve water quality, in preference to different considerations, such as ease of implementation, cost of implementation, or other. It is clear that there are management practices being implemented; it is not clear to Staff where this is occurring, or how often it is occurring, or the if implementation is improving water quality.

6. SVWQC COMMENT: "Page 3, Trend Analysis, Paragraph 5 and 6. It should be noted that SVWQC has continued to monitor several 'core sites' at the request of the Water Board staff.

RESPONSE: The development of core monitoring sites by SVWQC is so noted, and the potential to evaluate trends is applauded.

7. SVWQC COMMENT: "Aluminum, antimony, chromium, hexavalent chromium and mercury are not ILP parameters and should be deleted from the Trigger Limits table."

RESPONSE: The Review is a summary of all of the monitoring data that has been submitted, and in many cases metals results are submitted as a complete scan, whether or not they are part of the required analytes on the MRP list. Some of the listed analytes may have been part of that complete scan, or they may have been part of the UCDavis monitoring, which was not excluded to the parameters listed in the ILP Coalition MPR. Hexavalent chromium is not part of a multi-metal laboratory scan, and was not tested for in ILP monitoring, and that is now removed from the list, per commenters request.

8. SVWQC COMMENT: "Basin Plan designated beneficial uses (e.g., WARM and COLD) should be all caps."

RESPONSE: There is no requirement to capitalize beneficial uses where acronyms are not utilized.

9. SVWQC COMMENT: "Public Health Goals should not be used as a regulatory 'trigger' for human health benefits when there are legally valid MCLs for this purpose. This also applies to USEPA IRIS Reference Dose and Cal/EPA Cancer Potency Factors. These are not effect threshold values. Additionally, they are intended to be levels safe for long-term daily human consumption of treated drinking water, and are clearly not valid to be used as a 'never to be exceeded' value in untreated surface water with a low potential for incidental human exposure. If they must be used at all as 'triggers', they should be compared to long-term average or median water quality characteristics when evaluating potential risks.

RESPONSE: When an MCL and advisory concentrations (such as public health goals, IRIS Reference Doses, etc.) both exist for the same constituent dealing with the same human health impact, it is usually most appropriate to consider the MCL when evaluating potential human health impacts of that constituent. The Zone Report is strictly a presentation of data. MCLs, PHGs, and other regulatory standards and advisory guidance are included to assist reviewers in understanding the significance of the data, but the Zone Report does not conclude that any specific concentration is appropriate or not appropriate for a given sampling site. As discussed in earlier responses, the Board is initiating a process to better define the beneficial uses and water quality objectives that apply to Central Valley water bodies.

Also, a single or relatively few sample results may not adequately determine "compliance" with an MCL or other concentration deemed appropriate for long-term human consumption. Many factors may need to be considered, including the need for additional sampling. However, where monitoring occurs with low frequency and calculation of long-term averages is not possible, the Regional Board must make the assumption that measured concentrations may, in fact, have occurred over long periods. To do otherwise would not provide prudent protection of beneficial uses. The fact that limited sampling data exists is considered in determining the Regional Board's response to the data, including possibly determining that follow-up monitoring is needed so that long-term water quality conditions can be evaluated.

10. SVWQC COMMENT: "Figure Z1-3 through Figure Z1-6. In the summary charts, the y-axis should be the percent of toxic samples to allow comparison between species results, and to provide perspective on the frequency of toxicity. Showing only the total number of toxic results is misleading because it provides no perspective without the total number of samples evaluated. The total number in each category can be added to the charts without affecting the meaning or purpose of the graph. In the map, toxicity should also be presented as percentages, not absolute numbers."

SVWQC COMMENT: "Figure Z1-7, Pesticides. In the summary charts..... (similar to above comment on toxicity charts)

SVWQC COMMENT: "Figure Z1-8, *E-coli*. In the summary charts.....(similar to above comment on toxicity charts)

RESPONSE TO THE ABOVE THREE COMMENTS: Different types of information are presented when discussing percentages as opposed to absolute numbers, and it is difficult to present all of the information in one chart. For this reason, the Review does attempt to present the information in a variety of ways, through the summary tables, in the graphs and maps. This allows the reader to have access to multiple aspects of the data evaluation.

### **C. RESPONSE TO COMMENTS RECEIVED FROM TIMOTHY JOHNSON, CALIFORNIA RICE COMMISSION (CRC)**

1. CRC COMMENT: "Page Z2-12. Table Z2-6. Summary of Detections of Pesticides Under Basin Plan Prohibition. Please revise the table to correctly reflect the prohibition of discharge for molinate and thiobencarb. Please omit any detection for molinate of 10.0 micrograms per liter of water (ug/L) or less, and thiobencarb of 1.5 ug/L or less."

CRC COMMENT: " Page Z3-12. (similar to above comment)

CRC COMMENT: "Page Z3-14. (similar to above comment)

CRC COMMENT: "Zone 1:Pages A-3, A-5, A-7 (similar to above comment)

RESPONSE TO THE ABOVE FOUR COMMENTS: The CRC has very appropriately identified to Staff that the Basin Plan prohibition of discharge for these five pesticides does not apply to

members of the California Rice Commission, to which Basin Plan performance goals are applied. Molinate and thiobencarb are used exclusively on rice crops in Zones 1, 2 and 3 and therefore Staff corrected the Zone reports to compare the results to Basin Plan performance goals, which for molinate is 10.0 ug/L. However, the secondary MCL of 1.0 is used for thiobencarb in Zones 2 and 3, due to the fact that there is no information that indicates that the sites are not on waterbodies tributary to MUN waterbodies. Staff has reworked the sections in Zones 2 and 3 that address the Basin Plan prohibited pesticides, and a few small changes in the tables that tally exceedances. Additionally, trigger limits listed in the tables for methyl parathion, malathion and carbofuran have been changed from 0 ug/L to ND (non detect) for non-rice applications.

2. CRC COMMENT: "Attachment B. Crop and Pesticide Use Zones 1,2, 3. Butte and Colusa Counties. The report lists fluridone (CAS No. 59756-60-4) as a rice pesticide. In California, fluridone uses exist for landscape maintenance, regulatory pest control, rights of way, structural pest control and water areas (Department of Pesticide Regulation (DPR), Pesticide Use Report (PUR) 2004, 1005). No crop uses exist in California even though registrations exist on several commodities, excluding rice (Title 40 Code of Federal Regulations Section 180.420. Fluridone is not a rice pesticide because no residue tolerance (40CFR Section 180.420) exists resulting in no registration of this produce on rice.

Please include propiconazole because it is a combination product with trifloxystrobin in the formulated fungicide Stratego.

CRC COMMENT: "Attachment B. Glenn County: Registration of the insecticide methyl parathion exists on rice. However, use is declining due to decreasing efficacy. In 2005, 82 acres of rice received a formulated insecticide containing methyl parathion, toxaphene and xylene, which accounts for separate listings of these products on the DPR PUR."

CRC COMMENT: "Attachment B. Yuba County: Registration of the insecticide methyl parathion exists on rice. However, use is declining due to decreasing efficacy. In 2005, 32 acres of rice received a formulated insecticide containing methyl parathion, and xylene, which accounts for separate listings of these products on the DPR PUR.

RESPONSE TO THE ABOVE THREE COMMENTS: Subsequent to receiving this comment Staff noted that slightly different reports result from the DPR Pesticide Use Portal than from the DPR Pesticide Use Summary, both of which are accessed from the DPR website, <http://www.cdpr.ca.gov/docs/pur/purmain.htm>. Staff communicated with DPR and the CRC regarding the discrepancy, and as a result of those communications, an error in the database which generates the DPR website reports has been corrected by DPR. The Review Attachment B that was generated from the DPR website, was also corrected.

#### **COMMENTS FROM CH2M HILL, for CRC**

3. CRC COMMENT: 'Characterization Conditional Prohibition of Discharge (Rice Pesticides Program). It is suggested that all narrative discussion of molinate and thiobencarb detections be re-evaluated in the context of the conditional nature of the prohibition of discharge. For drain sites, the monitoring results should be compared to the Basin Plan performance goals. Without such revisions, the report will be inconsistent with the Basin Plan. Additionally, if any monitoring sites for rice pesticides were within closed systems, those results should not be included as either drain or river sites.'

RESPONSE: Same response as to CRC Comment, C.1. above.

4. CRC COMMENT: “Figure Z1-1: The title of this figure is “Supplemental Monitoring Sites”. In the text, the term “supplemental” should be clarified/defined.

RESPONSE: Perhaps the commenter meant to refer to Figure Z1-2, which does have the title of “Supplemental Monitoring Sites”. Staff agrees that the definitions of Supplemental Monitoring Sites and MRP Plan sites (or Coalition Monitoring Sites) should be provided. These are now provided in the Review Introduction, under the section entitled ‘Data Included In This Evaluation.

5. CRC COMMENT: “Figures Z1-4, Z1-5, Z1-5, Z1-6, Z1-7, Toxicity Results. The maps present the number of times that statistically significant toxicity was detected. Although the maps do present the *sites* for which there was no detected, the *number* of samples for which toxicity was not detected should also be presented (a.g., N=# on the detection graphs). Additionally, graphs showing the temporal distribution of the toxicity results would be useful, as they may help to identify seasonal toxicity trends that may, in turn, be traced back to use patterns for specific pesticides or ambient seasonal conditions.”

RESPONSE: There are tables throughout the 2007 Review that correspond to each of the maps in which the total number of toxicity tests that were conducted is presented. In particular, Table Z1-2 lists the total number of tests collected at each monitoring site for Zone 1. Staff agrees that an understanding of the total number collected as compared to the number that exceeded the criterion is important information. Staff also agrees that showing seasonal *E. coli* trends would be informative and helpful, although there was insufficient time to evaluate the data for all four Zones to that extent. It is anticipated that the Coalitions are performing this type of analysis when their Semi-Annual Monitoring Reports are being prepared.

6. CRC COMMENT: “Figures Z1-4, Z1-5, Z1-5, Z1-6, Z1-7, Toxicity Results. ...the report should clearly and plainly explain the purpose and nature of toxicity tests for readers unfamiliar with these tests. For example, it would be useful to explain that relatively sensitive organisms are intentionally employed, so that the tests do not necessarily indicate toxicity to all other organisms, but rather serve as a warning that the most sensitive organisms could be at risk at the time of sampling. Also, the cause of the toxicity is not necessarily determined by the test; rather, this requires additional and quite detailed analysis that the coalitions are also undertaking where toxicity is detected. Finally, a detection of toxicity does not prove that farming or irrigation in any way caused the toxicity; rather, this must be investigated by more detailed sampling and analysis. In Zone 1, there are many potential non-agricultural causes of toxicity.

RESPONSE: The 2007 Monitoring Review is written for an audience with a moderately technical background. However, the Monitoring Workshop, which will be presented to the Central Valley Water Board in August, will provide a more layman’s explanation of the value of toxicity testing and the selection of test species. The three test species used to assess toxicity were selected to represent three trophic levels of the food web: *S. capricornutum*, algae and primary producer; *C. dubia*, invertebrate and primary consumer; *P. promelas*, minnow and secondary consumer. In addition the testing methods for these species are well established, are reliable and repeatable, and have been demonstrated to predict instream impacts to the aquatic community (USEPA 1991. Technical support document for water quality-based toxics control, EPA/505/2-90-001. Office of Water, Washington, D.C.). These species are neither the most nor least sensitive when compared to other species. Regardless of the species used to assess toxicity, only a small range of sensitivity is represented.

Finally, staff agrees that a detection of toxicity does not prove that farming or irrigation necessarily caused the toxicity. It is true that there are other land uses that could cause the same result, although it is the Coalition's responsibility to take care in sample site selection so that influence from other land uses is minimized. The identification of sources of water quality exceedances is an action that Coalitions must also undertake, particularly if more than one exceedance occurs within a three-year period.

7. CRC COMMENT: "Figure Z1-9, Monitoring Results for *Escherichia coli*: The map presents the number of times that *e.coli* triggers are exceeded. It is suggested that the numeric trigger be noted on the map. Additionally, the number of sample events should also be included so that the reader could determine the % of the time that triggers are exceeded. Additionally, graphs showing the temporal distribution of the *e.coli* measurements would be useful, as they may help to identify seasonal toxicity trends that may, in turn, be traced back to use patterns for specific pesticides or ambient seasonal conditions."

RESPONSE: There are tables throughout the 2007 Review that correspond to each of the maps in which the total number of toxicity tests that were conducted is presented. In particular, Table Z1-2 lists the total number of tests collected at each monitoring site for Zone 1, including those for *E. coli* (bacteria column). Staff agrees that an understanding of the total number collected as compared to the number that were toxic is important information. Staff also agrees that showing seasonal toxicity trends would be informative and helpful, although there was insufficient time to evaluate the data for all four Zones to that extent. It is anticipated that the Coalitions are performing this type of analysis when their Semi-Annual Monitoring Reports are being prepared.

8. CRC COMMENT: "Executive Summary. Are 'agricultural drainages' streams/rivers that receive ag drainage, constructed ag drains, or ag-dominated waterbodies?"

RESPONSE: The term 'agricultural drainages' in this context is used to describe waterbodies that receive agricultural drainage or runoff from irrigated agriculture.

9. CRC COMMENT: Overview of Water Quality Concerns. CRC recommends the following text change, and information regarding the seasonality of such detections would be beneficial to the reader: "3. Toxicity to *Selenastrum capricornutum* (algal species) is generally associated with herbicides, and metals, such as copper, though to date the results of the analysis (including those undertaken by Coalitions and the UC Davis Phase I monitoring) have not conclusively identified specific causative agents.

RESPONSE: The recommended language change was added with the exception of the phrase underlined above. The UC Davis Phase I monitoring did not include *Selenastrum capricornutum*, and therefore, that statement is not accurate. Furthermore, staff recognizes that some TIE results for the algal species have provided information, and the task remains to evaluate all TIE results in order to determine how many specific causative agents have, or have not, been identified.

It is also anticipated that with completion of all Coalition's Phase II monitoring, which includes herbicides and metals, that a greater number of specific correlations will be made. In addition, the California Rice Commission is undertaking special studies to help determine the causes of algal toxicity in Zone 1. Staff also agrees that showing seasonal toxicity trends would be informative and helpful, although there was insufficient time to evaluate the data for all four

Zones to that extent. It is anticipated that the Coalitions are performing this type of analysis when their Semi-Annual Monitoring Reports are being prepared.

10. CRC COMMENT: "Overview of Water Quality Concerns. Information regarding the seasonality of such detections (chlorpyrifos, diazinon, simazine, diruon, and DDT/breakdown products) would be beneficial to the reader."

RESPONSE: Staff also agrees that showing seasonal trends would be informative and helpful, although there was insufficient time to evaluate the data for all four Zones to that extent. It is anticipated that the Coalitions are performing this type of analysis when their Semi-Annual Monitoring Reports are being prepared.

11. CRC COMMENT: Overview of Water Quality Concerns. 7. Salinity... "what is the basis for the 'concern'? Salinity in the Delta has been a known issue of concern for a very long time and the SWRCB is engaged in establishing and enforcing salinity requirements in the Delta (primarily associated with Delta pumping). In addition, TMDL efforts for Salinity are underway in the San Joaquin. Some historic perspective on this matter would provide the layman with background understanding regarding the Board's ongoing efforts to address salinity in the Central Valley."

RESPONSE: Staff agrees that making more information about the salinity issue and actions taken to address it would be informative to the reader. A link to the Central Valley Regional Water Quality Control website that describes the salinity issue and describes programs being taken to address it has been added to the Executive Summary.

12. CRC COMMENT: "3. Standards Applied to Detected Results. The statement '*Because the Irrigated Lands Conditional Waiver is a general waiver, it does not set forth the designated beneficial uses in each water body, nor the water quality criteria and objectives.*' is problematic. The issue at hand that it may be inappropriate to apply drinking water standards to waterbodies that are agriculturally dominated and/or constructed ag drains. This has nothing to do with the waiver, rather, it is a matter of Basin Planning process. It would be better stated that where water quality standards/objectives are adopted for specific waterbodies, monitoring results have been compared to those standards/objectives. Where monitoring sites are located on waterbodies that do not have adopted standards/objectives, a public process is being developed to compare results to threshold values. This comparison will allow for the prioritization of concerns."

RESPONSE: According to USEPA, *all* of our water bodies have beneficial uses designated in the Basin Plan, either directly for water bodies named in the Basin Plan, or more indirectly via the tributary footnote and our incorporation of the Sources of Drinking Water Policy into our Basin Plan (all unnamed waterbodies have MUN). In addition, water quality objectives have been assigned to specific water bodies or to protect specific beneficial uses more broadly. In addition, CTR and NTR criteria apply to most surface waters within our Region. Therefore, water quality standards [(designated beneficial uses) + (water quality objectives or CTR/NTR criteria)] have been adopted for most of our water bodies.

13. CRC COMMENT: "4. Pesticides Applied vs. Pesticides Analyzed. The statements '*The MRP requires that coalition monitoring include tests for specific list of standard-use pesticides for which analytical methods have been established*' and '*This is evidenced in Table Z4-1, Pesticide use in Zone 4, which identifies the list of pesticides used for each crop type in Zone 4, many of which are not part of the baseline ILP MRP monitoring requirements*' are problematic."

The first statement generalizes the requirements of the MRP and needs to be reworded to accurately reflect the requirements of the waiver with respect to pesticide monitoring. Specifically, the MRP requires that monitoring and reporting be conducted in accordance with approved MRP Plans developed in accordance with the CVRWQCB's Monitoring and Reporting Program Order R5-2005-0833 (MRP Order). The MRP Order specifies that Phase I monitoring was to include a Pesticide Use Evaluation. Phase 2 was to include chemical pesticide analyses based on the Pesticide Use Evaluation. Further, the MRP Order listed the minimum monitoring requirements for pesticide.

The second statement could be interpreted to mean that the MRP plans did not include required analyses. The MRP requires that monitoring and reporting be conducted in accordance with an approved Coalition-specific MRP Plans. The statement was written implies that Coalitions are not compliant with the MRP requirements. If the analysis of pesticides applied versus pesticides analyzed has determined that additional pesticides should be monitored by Coalitions, then it is a matter of revising MRPs."

RESPONSE: The following is an excerpt from the introduction of the 2007 Review:

This 2007 Review does not consider issues of compliance in the evaluation of data collected for the Monitoring Program. The intent of is solely to summarize the monitoring information and provide baseline information regarding water quality conditions, identify findings that can be made, and consider areas where the collection of more water quality data would be effective at understanding baseline conditions and providing guidance for management practice implementation.

The above paragraph indicates that there was a specific effort during the writing of the Review to avoid any discussion about Coalition compliance. The statements about the pesticides being monitored compared to the pesticides being applied refers to the fact that current pesticide applications are not always being monitored and does not say anything about Coalition compliance. The intent of the section is to identify to the reader that water quality data on the pesticides that are in current use during the monitoring season would be more informative than monitoring from a specified list, such as the one in the existing MRP Order.

14. CRC COMMENT: "7. Missing Spatial Data. If revisions to the Conditional Waiver program are thought necessary to improve the ability of the program to characterize agricultural discharges, then that should be stated."

RESPONSE: The reason that this Review has been prepared, and will be presented to the Central Valley Water Board members (Board) is in large part so that program decisions can be made based on the information that the Monitoring Review provides. One of the upcoming decisions for the Board will be decisions on modifications to the existing MRP Order. The Closing Summary of the Review states as follows:

'The Coalition Group Monitoring and Reporting Program is being revised in part through the efforts of Water Board staff in consultation with the ILP Technical Issues Committee as well as other stakeholders. The changes that are being proposed are based on lessons learned from the previous and current MRP (Order RB5S-2005-0833), as well as on considerations to balance the need for more technical information with concerns about cost effectiveness. The modifications that will be made in the Coalition monitoring plans will have an effect on information available for future data assessments.'

15. CRC COMMENT: "Figure Z1-3. Seasonality of toxic events would be beneficial to the reader."

CRC COMMENT: "Page Z1-21. (similar comment to above)"

CRC COMMENT: "Summary. (similar comment to above)"

RESPONSE TO THE ABOVE THREE COMMENTS: Staff agrees that showing seasonal trends would be informative and helpful, although there was insufficient time to evaluate the data for all four Zones to that extent. It is anticipated that the Coalitions are performing this type of analysis when their Semi-Annual Monitoring Reports are being prepared.

#### **D. RESPONSE TO COMMENTS RECEIVED FROM JOHN B. MEEK, Jr. SAN JOAQUIN COUNTY & DELTA WATER QUALITY COALITION (SJCDWQC)**

1. SJCDWQC COMMENT: "General Comments. 1. The document contains the symbol for  $\mu$  which appears to be a 'u'. It should be changed."

RESPONSE: Staff has been instructed to use u instead of  $\mu$  when describing concentrations, in particular when the document will be converted into different software versions or into different programs. Staff has experienced distortions with some symbols when program conversions take place.

2. SJCDWQC COMMENT: "Specific Comments. 1. The presentation of the pesticide data in Appendix B by total pounds is misleading since a large portion of the applications are inert compounds that should not be included. The current description suggests that for some crops in some locations, between 100-150 lbs/acre of pesticides are applied."

RESPONSE: Staff has deleted the inert ingredients and the pounds of inert ingredients applied.

3. SJCDWQC COMMENT: "4. Page Z2-8, paragraph 1. This paragraph is not specific to Zone 2, and a majority of those tests were performed in Zone 3. The percentages of pyrethroid/chlorpyrifos associated sediment toxicity should be specific to the zone."

RESPONSE: The study being conducted through the University of California is providing valuable information about the causes of sediment toxicity that is currently not available from Coalition monitoring, due to the existing MRP Order requirements. The paragraph regarding results from the UC study is not removed, although specific reference with respect to percentages has been removed.

4. SJCDWQC COMMENT: "Page Z2-7, Table Z2-3 and Page Z2-8, paragraph 2. The water quality objective in the table and the paragraph should be 0.16 ug/L, not 0.10 ug/L (Amendments to the Water Quality control Plan for Sacramento River and the San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Sacramento-San Joaquin Delta, June 2006 Final Staff Report, pgs 25-56).

RESPONSE: Commenter is referring to the use of chronic exposure levels of 0.10 ug/L, as determined by the 4-day average concentrations. Staff does not agree that the use of only acute values, such as 0.16 ug/L, is appropriate for sampling that occurs only once per month. The sample results are assumed to be representative of water quality conditions during that month, so the evaluation of the data is based on the chronic criterion. To be prudently protective of the aquatic life beneficial use, it must be assumed that infrequent sample results

represent concentrations that could occur over extended periods and result in chronic toxicity. Coalitions do have the alternative of increasing the monitoring frequency so that 4-day average concentrations could be calculated and both acute and chronic exposure levels could be applied to the results.

**E. RESPONSE TO COMMENTS RECEIVED FROM MICHAEL JOHNSON, FOR PARRY KLASSEN (EAST SAN JOAQUIN WATER QUALITY COALITION) AND JOE MCGAHAN (WESTSIDE COALITION)**

1. KLASSEN-MCGAHAN COMMENT: "General Comments. 1. The document contains the symbol for  $\mu$  which appears to be a 'u'. It should be changed."

RESPONSE: See response to D.1, above.

2. KLASSEN-MCGAHAN COMMENT: "General Comments. Page Z3-1. The presentation of the pesticide data by total pounds is misleading since a large portion of the applications are inert compounds that should not be included. The current description suggests that in some crops in some locations, between 100-150 lbs/acre of pesticides are applied. This does not take into account a product's water solubility, it's relative toxicity to aquatic organism (if any) and whether applications of the products listed have the potential to reach waters of the state."

RESPONSE: Perhaps the commenters are referring to pesticides listed in Attachment B. See response to comment, D. 2, above. taff has deleted the inert ingredients and the pounds of inert ingredients applied from that Attachment. The text in Page Z3-1 and the table in Attachment B do not state nor imply anything with regard to the relative risk of the chemicals in the use summary, based on the characteristics described by the commenters. The Attachment merely summarizes total pesticide use, which in some cases totals many pounds per acre. The relative risk of certain specific pesticides, based on interpretation of available data, is evaluated and presented elsewhere in the report.

3. KLASSEN-MCGAHAN COMMENT: "Page Z3-8, paragraph 2. The first sentence indicates that DDT is still used in other countries, which is true but irrelevant to the current review. The beginning clauses in that sentence are true."

RESPONSE: The fact that DDT is used in other countries has relevance to the discussion, because it raises the possibility of possible sources of DDT residues, such as importation of contaminated products, illegal use, etc.

4. KLASSEN-MCGAHAN COMMENT: "Page Z3-17, paragraph 4. The preliminary report provided by the ESJWQC in November 2006 indicated that human fecal contamination was the most probable cause of the high coliform counts in surface waters. These results should be included in the current review because they are critical in the interpretation of the *E. coli* data submitted by the coalition."

RESPONSE: The preliminary report from ESJWQC provides useful and important preliminary information, but it had not been thoroughly reviewed, finalized and submitted in November 2006. It is also important to note that the samples collected for the DNA study conducted by UCDavis were collected only at specific monitoring sites, and only during the irrigation season. It may well be that results from different locations and during the storm seasons would have different results. The final report completed by UC Davis for the ESJWQC on 18 June 2007, and was provided to staff in July 2007. The Draft 2007 Monitoring Data Review was completed on 13

June 2007. Clearly, there has been insufficient time for staff to review the final report, make comment, and include it in the 2007 Monitoring Review.

5. KLASSEN-MCGAHAN COMMENT: "Page Z3-19, first partial paragraph. The second line identifies Prarie Flower Drain and Hilmar Drain as the source of the majority of the EC/TDS exceedances on the east side of the river. It should be pointed out that these sites are located very close to the SJR and overly a subsurface geology that is high in EC/TDS EC/TDS."

RESPONSE: The relevance of the comment that these sites are very close to the San Joaquin River is not clear. The comment that the sites overlie a subsurface geology high in TDS offers one possible source or explanation for the salinity measured at these locations. Documentation of this as part of an approach to identifying causes of exceedances will be appropriate for the Coalitions' Management Plans.

6. KLASSEN-MCGAHAN COMMENT: "Page 2, paragraph 3. The paragraph goes on to state that a CV Salinity management Plan is being developed that will affect the ILP, but no details are provided."

RESPONSE: Staff agrees that making more information about the salinity issue and actions taken to address it would be informative to the reader. A link to the Central Valley Regional Water Quality Control website that describes the salinity issue and describes programs being taken to address it has been added to the Executive Summary.

#### **F. RESPONSE TO COMMENTS RECEIVED FROM MARSHALL LEE, CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION (CDPR)**

1. CDPR COMMENT: "Section I, Page 7, Comparison to Standards; It will probably not be apparent to many readers why MCLs and other public health-related values will be used as water quality triggers in waterways that are not intuitively considered drinking water sources (MUN). A fuller explanation of your generalizations and assumptions would be helpful. Also, to allay concern that drinking water may be unhealthy due to pesticides found in MUN-designated waters, it would be valuable to state that MCLs (as defined in CCR Title 22) for pesticides are fully protected.

RESPONSE: The Water Board is mandated to protect future as well as existing beneficial uses. The manner in which the Sources of Drinking Water Policy was incorporated into the Basin Plan, designated MUN for all waters not specifically listed. Generalization for the Review had to be made, although beneficial uses and appropriate standards to apply at each of the monitoring sites will be clarified in the near future as the ILP continues to develop. Staff will consider the use of clarifying language regarding generalizations and assumptions for future reports and discussions.

2. CDPR COMMENT: "Section I, Page 7. Similarly, it would be valuable to state, perhaps in Section I, that exceedances of water quality triggers do not necessarily equate to toxic conditions or impairments of beneficial uses. Water quality criteria, for example, are protective by design and cannot be equated with thresholds of toxicity."

RESPONSE: According to USEPA protocols, aquatic life numeric triggers represent concentrations that, if exceeded more than once in three years, could result in impairment of beneficial uses. Exceeding a trigger, used to apply a narrative objective, can be interpreted as a violation of the narrative objective. The demonstration of concurrent toxicity or any direct evidence of use impairment before noting an exceedance is not needed. USEPA's long-standing policy for determining compliance with water quality standards has been that any line of evidence (chemical, toxicity, or biologic integrity) can be used independently to determine whether violations have occurred.